

# **DataStarWeb**

## **Documents**



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**Building certification paths: forward vs. reverse.**

*Accession number & update*

7769766, C2003-12-1260C-005; 20031027.

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Sun Microsystems Labs, Burlington, MA, USA.

*Source*

8th Annual Symposium on Network and Distributed System Security (NDSS'01), San Diego, CA, USA, 8-9 Feb. 2001.  
In: p.8 pp., 2001.

*Publication year*

2001.

*Language*

EN.

*Publication type*

CPP Conference Paper.

*Treatment codes*

T Theoretical or Mathematical.

*Abstract*

In general, building and validating a certification path connecting a trust anchor to a target can be a very time-consuming process. As such, any optimizations are valuable. Certification paths are commonly built from the target to the trust anchor ("building in the forward direction") or from the trust anchor to the target ("building in the reverse direction"). This paper presents a comparison of these two approaches, analyzes the advantages and disadvantages of each approach, and concludes that building in the reverse direction is often more effective than building in the forward direction. (12 refs) .

*Descriptors*

certification; *public-key-cryptography*.

*Keywords*

certification path; trust anchor; reverse direction; forward direction; *public key* cryptography; signature; *public key certificate*.

*Classification codes*

C1260C (Cryptography theory).

C6130S (Data security).

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**Evaluating trust in a *public key* certification authority.**

**USPTO Full Text Retrieval Options**

*Accession number & update*

7111426, B2002-01-6120D-085, C2002-01-6130S-078; 20011203.

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**Source**

Computers–Security (UK), vol.20, no.7, p.592–611, 2001. , Published: Elsevier.

**CODEN**

CPSEDU.

**ISSN**

ISSN: 0167–4048, CCCC: 0167–4048/01/ (\$20.00).

**Availability**

SICI: 0167–4048(2001)20:7L.592:ETPC; 1–H.

**Publication year**

2001.

**Language**

EN.

**Publication type**

J Journal Paper.

**Treatment codes**

A Application; P Practical.

**Abstract**

With the growth of many different *public key* infrastructures on the Internet, relying parties have the difficult task of deciding whether the sender of digitally signed message is really who the *public key certificate* says they are. We have built an expert system that calculates the amount of trust, or trust quotient, that one can place in the name to *public key* binding in a *certificate*. The structure of the expert system is based on the CPS framework of Chokhani and Ford (RFC 2527), whilst the relative importance of the various factors that comprise the trust quotient, were determined by inter-viewing PKI experts from around the globe. This paper discusses the knowledge analysis strategy employed to collect this expert information and how we used it to develop the KBS. The analysis of the results of the interviews are also presented, and they can be summarised succinctly as "there are some factors concerning trust in a PKI which nearly all experts agree upon, and there are other factors in which there is very little agreement at all". The importance of identifying contextual factors when building a knowledge base is very important. In many cases, a disagreement between experts, as shown by a bimodal split in importance, was traced to differences in context and we show how this can be a source of new knowledge. (14 refs).

**Descriptors**

certification; expert–systems; Internet; knowledge–based–systems; *public–key–cryptography*.

**Keywords**

*public key* certification authority; Internet; digitally signed message; trust quotient; *public key* binding; CPS framework; PKI experts; knowledge analysis; expert system; RFC 2527; knowledge base; trust evaluation.

**Classification codes**

B6120D (Cryptography).  
C6130S (Data security).  
C1260C (Cryptography theory).  
C6170 (Expert systems and other AI software and techniques).  
C7210N (Information networks).

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## Search strategy

No.	Database	Search term	Info added since	Results
1	INZZ	public ADJ key ADJ certificate	unrestricted	57
2	INZZ	limit set 1 YEAR = 2001		2

Saved: 01-Sep-2005, 18:07:49 CET

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